

ACID GAS SEPARATION BY RECTISOL IN SNG PROCESSES

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Economical acid gas removal plays an important part in the production of Substitute Natural Gas or of Low-BTU-Gas by coal gasification. Because the removal of H₂S, COS and CO₂ will be carried out under high pressure, a physical absorption process shows lower utility consumption figures and a lower solvent circulation rate than chemical absorption. Desulphurization is especially important. Air pollution standards require that the sulphur content (H₂S, SO₂) in the offgas be as low as possible. The extremely sulphur-sensitive Methanation Catalyst requires that all sulphur in the feedgas be removed down to the PPB-level. Sulphur compounds must be delivered to a Claus-unit at a concentration suitable for elemental-S removal.

Rectisol is most suitable for all these requirements; with a single solvent which is cheap, widely available, and non-corrosive, H₂S and COS are removed down to 1 ppm or, if required, to 0.1 ppm. Final purification of the gas with Zinc Oxide is then feasible. H₂S is concentrated to 20-30% in the H₂S-fraction. CO₂ can be removed to any desired level. The CO₂-offgas contains less than 5 ppm H₂S. CH₄ and H₂ losses can be reduced to less than 1% by means of a recycle compressor.

The process has been in commercial operation for several years for acid gas removal from the crude gas produced by the partial oxidation of residual oil, and meets the air pollution requirements for Los Angeles, California. Actual operating data are given for a plant with 80 MMSCFD throughput.